

Phenotype, Morphology, Phagocytosis, and Migration properties of Immature and Mature Dendritic Cells

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To mediate and initiate adaptive immunity, dendritic cells (DCs) as antigen-presenting cells playing important factor in the immune system pass two stages; immature and mature.

These stages can be characterized by the morphological, phenotypical, and functional characteristics of DCs. Here, we compared the morphological and phenotypical properties of DCs in both stages and studied their relationship to the phagocytic and migratory ability of the cells for better understanding of DC biology in cancer immunotherapy. Immature DCs had spherical shape and low levels of costimulatory molecules. After maturation, DCs had longer dendrites with high levels of costimulatory molecules. As a result, the immature DCs showed phagocytic ability and mature DCs moved faster than immature DCs. The relationship between immature and mature DCs and understanding of initiation of adaptive immune system by DCs in DC-mediated immunotherapy would contribute the improvements of biomaterials-based cancer vaccine.